

A REVIEW OF THE GENUS PHRYNOSOMA.

BY ALAN F. GENTRY.

Phrynosoma Wiegmann, in Oken, *Isis*, xxi, 1828, p. 367; Wagler, *Naturl. Syst. Amph.*, 1830, p. 145; Gray, *Cat. Liz. Brit. Mus.*, 1845, p. 227; Dumeril & Bibron, *Erpet. gener.*, iv, 1837, p. 311; Holbrook, *N. A. Herp.*, ii, 1842, p. 85; Fitzinger, *Syst. Rept.*, 1843, p. 78; A. Dumeril, *Cat. Meth. Rept.*, i, 1851, p. 78; Girard, *Stans. Expl. Vall. Gt. Salt Lake*, 1852, p. 354; Girard, *Herp. U. S. Expl. Exped.*, 1858, p. 388; Dumeril & Bocourt, *Miss. Sci. au Mex. et Am. Cent.*, 1870, p. 217; Cope, *Check List N. A. Batrach and Rept.*, 1875, p. 49.

Anota Hallowell, *Proc. Acad. Nat. Sci. Phila.*, 1852, p. 182.

Gen. Char.—Head short, cordiform, elevated at the vertex, and armed behind and on the sides with strong spines, variable in length and number. Cephalic plates small, rugose and polygonal. Palatine teeth wanting. Gular fold present. Auricular aperture inconspicuous in certain species, or entirely absent. Body short, rounded, depressed, and ordinarily fringed. Dorsal and caudal crests lacking. Limbs short, digits moderately developed. Tail comparatively short. Femoral pores present, but anal wanting.

This genus, which is probably the best defined and the most strikingly distinct of its family, is wholly restricted to North America. Its northernmost range, so far as has been determined, is the boundary line between the United States and the British possessions, Dr. Coues having met with it in the region of the Milk River during the summer of 1874, while its southern limit is the scope of country that occupies the terminus of Mexico. Montana, Dakota, Nebraska, Kansas, Indian Territory, Texas, and the countries stretching thence to the Pacific, are the only portions of the Union, as far as are known, that have yielded evidences of its existence. Of the many species which have been described from this area, but twelve seem to me as valid, seven being denizens of the United States, and the residue of the tablelands of Mexico.

While differing from previous writers in an estimate of the number of species, I am constrained to disallow any separation of the genus into subgenera, as has been done by Girard, and by Dumeril and Bocourt, since the characters upon which they are founded are not sufficiently strong to warrant such a division. The interests of science are doubtless best subserved by considering but a single undivided genus, whose species-representatives,

with their most salient marks of distinction, I shall now proceed to tabulate.

Synopsis of Species.

- I. Nostrils lateral; opening on the anterior extremity of the superciliary ridge.
- A. A single row of pyramidal scales at the periphery of the abdomen; gular scales subequal; abdominal scales smooth.
1. Cephalic spines very short and tubercular; occipitals less prolonged than the longest of the temporals, posteriorly; head broader than long. *Douglassi.* 1.
 2. Cephalic spines of medium length; occipital spines directed obliquely upwards, and a little less prolonged than the longest of the temporals, posteriorly; head broader than long. *Boucardi.* 2.
 3. Cephalic spines of medium length; occipital spines horizontal, more prolonged than the longest of the temporals, posteriorly; head as broad as long. *orbiculare.* 3.
- B. Two rows of pyramidal scales at the periphery of the abdomen; three or four rows of enlarged pointed gular scales upon each side of the median line.
1. Abdominal scales smooth; cephalic spines to the number of twelve or thirteen; occipital spines horizontal or nearly so. *coronatum.* 4.
 2. Abdominal scales carinated; cephalic spines eight in number; occipital spines vertical. *asio.* 5.
- II. Nostrils anterior; situated within the superciliary ridge; two rows of enlarged gular scales, one row on each side of, and distant from, the median line.
- A. Two rows of pyramidal scales at the periphery of the abdomen; auricular opening conspicuous.
1. Abdominal scales carinated, sometimes smooth or nearly so; occipital spines directed obliquely backward, much longer than the longest of the temporals, from which they are separated by one or two flattened scales. *cornutum.* 6.
 2. Abdominal scales carinated; cephalic spines forming with the inframaxillary plates a continuous circular series; occipital spines projecting posteriorly as far as, and not separated from, the longest of the temporals. *regale.* 7.

- B. One row of pyramidal scales at the periphery of the abdomen; auditory aperture conspicuous.
- a. Abdominal scales carinated; tail very short, not equal in length to the femur.
1. One temporal on each side strongly developed and conical, very much more prolonged posteriorly than the occipitals, which are small. *taurus*. 8.
 2. Temporal spines moderate, flattened, four or five on each side, scarcely projecting beyond the occipitals, posteriorly. *Braconnieri*. 9.
- b. Abdominal scales smooth; tail of ordinary length; occipital spines projecting beyond the longest of the temporals, posteriorly. *platyrhinos*. 10.
- C. No pyramidal scales at the periphery of the abdomen; auditory aperture sometimes absent on one or both sides in *modestum*; always absent in *Maccalli*; abdominal scales smooth.
1. Occipital spines short, projecting about as far as the longest temporal, posteriorly; one row of enlarged gular scales next to the inframaxillary plates. *modestum*. 11.
 2. Occipital spines very long and recurved, projecting much farther than the longest temporal, posteriorly; one row of enlarged gular scales on each side, distant from the inframaxillary plate. *Maccalli*. 12.

1. *Phrynosoma Douglassi*.

Agama Douglassi Bell, Trans. Linn. Soc. Lond., xvi, 1828, p. 105, pl. x; Harlan, Med. and Phys. Researches, 1835, p. 141.

Phrynosoma Douglassi Wagler, Naturl. Syst. Amph., 1830, p. 146; Gray, Griff. Anim. King., ix, 1831, p. 44; Wiegmann, Herp. Mex., 1834, p. 54; Dumeril & Bibron, Herp. gener., iv, 1837, p. 323; Holbrook, N. Am. Herp., ii, 1842, p. 101, pl. xiv; Dekay, Zool. New York, iii, 1842, p. 31; Fitzinger, Syst. Rept., i, 1843, p. 78; Gray, Cat. Liz. Brit. Mus., 1845, p. 227; Aug. Dumeril, Cat. Meth. Coll. Rept. Mus. Paris, 1851, p. 78; Girard, Stans. Expl. Vall. Gt. Salt Lake, 1852, p. 362, pl. vii, figs. 6-9; Aug. Dumeril, Arch. Mus. Hist. Nat., viii, 1856, p. 551; Cope, Proc. Acad. Nat. Sci. Phila., 1866, p. 302; Allen, Proc. Bost. Soc. Nat. Hist., xvii, 1874, p. 69; Cope, Am. Nat., xii, 1879, p. 435.

Phrynosoma orbiculare Hallowell, Sitgreaves' Expl. Zuni and Col. Riv., 1853, p. 125, pl. viii and ix.

- Tapaya Douglassi* Girard, Herp. U. S. Expl. Exped., 1858, p. 398, pl. xxi, fig. 1-5; Baird, P. R. R. Rep., x, 1859, Gunnison & Beekwith's Route, Rept., p. 18; *Id.*, Williamson & Abbott's Route, Rept., p. 9; Cooper & Suckley, Nat. Hist. Wash. Terr., 1860, p. 294; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 226, pl. xi, fig. 5.
- Tapaya brevirostre* Girard, Herp. U. S. Expl. Exped., 1858, p. 397; Cope, Proc. Acad. Nat. Sci. Phila., 1866, p. 302.
- Tapaya Hernandezi* Girard, Herp. U. S. Expl. Exped., 1858, p. 395; Baird, U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, p. 8.
- Tapaya ornatissima* Girard, Herp. U. S. Expl. Exped., 1858, p. 396; Baird, U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, p. 9; Baird, P. R. R. Rep., x, 1859, Whipple's Route, Rept., p. 38; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 227, pl. xi, fig. 6.
- Phrynosoma Douglassi*, subsp. *Douglassi* Cope, Check List N. A. Batrach. and Rept., 1875, p. 49; Yarrow, U. S. Geol. Surv. west of the 100th Meridian, v, 1875, p. 580; Copes, *op. cit.*, p. 590; Copes & Yarrow, Bull. U. S. Geol. Surv. of Terr., iv, 1878, p. 285.
- Phrynosoma Douglassi*, subsp. *ornatissima* Cope, Check List N. Am. Batrach. and Rept., 1878, p. 49; Yarrow, U. S. Geol. Surv. west of 100th Meridian, v, 1875, p. 581; Copes, *op. cit.*, p. 591; Copes & Yarrow, Bull. U. S. Geol. Surv. of Terr., iv, 1878, p. 286.
- Phrynosoma Douglassi pygmaea* Yarrow, Bull. U. S. Nat. Mus., v, 1882, p. 443.

Head broader than long; nostrils lateral, opening upon the anterior extremity of the superciliary ridge; cephalic spines small and tuberculous; occipital spines more prolonged than the longest temporal, posteriorly; last three or four sublabial scales on each side, enlarged and pointed; submaxillary plates small and subequal, about the size of the posterior sublabials; a conical scale at the angle of the mouth; gular scales nearly equal, the row next to the inframaxillary plates slightly largest; one row of pyramidal scales at the periphery of the abdomen; abdominal scales smooth; back armed with several rows of spiny scales; tail of medium length, similar to back above, smooth beneath, and fringed laterally with conical spines.

Habitat.—Washington Territory, Oregon, California, Montana, Dakota, Nebraska, Kansas, Indian Territory, Texas, Wyoming, Colorado, Utah, and New Mexico.

A careful study of *Douglassi*, and an institution of comparison between its characters and those of *Hernandezi*, convince me that the two are identical. The row of enlarged gular scales

next to the inframaxillary plates, as given by Girard as a mark of distinction, is also found in *Douglassi*. The abdominal scales are spoken of as being acuminate, and such is the case with those of the upper portion of the belly in *Douglassi*, although lower down they are somewhat obtuse.

Between *Douglassi* and the subspecies *ornatissima* and *pygmæa*, of some authors, I can perceive no differences. Examinations of numerous specimens in the collection of the Academy of Natural Sciences of Philadelphia, from all parts of its extended habitat, convince me that there are no fixed discriminating characters, not even of size, as the smaller northern forms are found to grade imperceptibly into their larger southern neighbors. And, as *pygmæa* was described from the region of the Columbia River, and *ornatissima* from New Mexico, the former as small and the latter as large, and corresponding otherwise as they do with *Douglassi*, there is good reason for considering them only as extreme forms of this species.

2. *Phrynosoma Boucardi*

Tapaya Boucardi Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 225, pl. xi, fig. 4.

Head broader than long; cephalic spines of medium length; occipital spines directed nearly vertically upwards, not prolonged as far posteriorly as the longest temporal; sublabials small, increasing in size posteriorly; inframaxillary plates somewhat smaller than the posterior sublabials; no enlarged pointed gular scales; one row of pyramidal scales at the periphery of the abdomen; abdominal scales smooth; back with numerous spinous scales; tail of ordinary length, similar to the body, with but few spines along the margin.

Habitat.—Plateau of Mexico.

This species is very easily separated from its nearest allies, *Douglassi* and *orbicularis*, by the character of the occipital spines. In the two latter these spines are directed nearly horizontally backward, while in the present species they project nearly vertically upward.

3. *Phrynosoma orbicularis*.

Lacertus orbicularis Hernandez, Nov. Plant. Anim. Min. Mex., xvi, 1651, p. 327, fig; Linnaeus, Syst. Nat., 1789, p. 1061; Cuvier, Regn. Anim., ii, 1817, p. 35; *Id.*, 2d ed., ii, 1819, p. 37.

- Agama orbicularis* Daudin, Hist. Nat. Rept., iii, 1805, p. 406; Voigt, Uebers. Thierr. Cuv., ii, 1831, p. 54.
- Phrynosoma orbiculare* Wiegmann, in Oken., Isis, xxi, 1828, p. 367; Wagler, Naturl. Syst. Amph., 1830, p. 146; Gray, Griff. Anim. King., ix, 1831, p. 45; Wagler, Deser. and Icon. Amph., 1833, pl. xxiii, figs. 1 and 2; Schinz, Naturg. und Abild. der Rept., 1833, p. 88, pl. xxvii, fig. 2; Gravenhorst, Act. Acad. Cæs. Leop. Carol. Nat. Cur., xvi, pt. ii, 1833, p. 912, pl. lxiii; Wiegmann, Herp. Mex., 1834, p. 53; Dumeril & Bibron, Erpet. gener., iv, 1837, p. 321; Gray, Cat. Liz. Brit. Mus., 1845, p. 228; Aug. Dumeril, Cat. Meth. Coll. Rep. Mus. Paris, 1851, p. 78; Girard, Stans. Expl. Vall. Gt. Salt Lake, 1852, p. 359; Sumichrast, Ann. and Mag. Nat. Hist., xiii, 1864, p. 507; Peters, Berlin Monatsb., 1869, p. 875; Müller, Verh. Natur. Gesell., Basel, 1878, p. 634; Weidersheim, Zool. Anz., i, 1878, p. 105.
- Phrynosoma Wiegmanni* Gray, Beechey's Voy. Pacif. Zool., 1839, p. 96.
- Tapaya orbicularis* Girard, Herp. U. S. Expl. Exped., 1858, p. 394; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 221, pl. xi, fig. 1.
- Tapaya orbicularis*, var. *Cortezii* Dumeril & Bocourt, Miss. Sci. au Mex. et Amer. Cent. Rept., 1870, p. 223, pl. xi, fig. 2.
- Tapaya orbicularis*, var. *Dugesii* Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 224, pl. xi, fig. 3.

Head as broad as long; cephalic spines moderately developed; occipital spines equal to, or a little more prolonged than, the longest of the temporals, posteriorly; sublabial plates very small; a large conical scale at the angle of the mouth; infra-maxillary plates small, equal in size to the posterior sublabials; one row of pyramidal scales at the periphery of the abdomen; abdominal scales smooth; back spinous; tail of ordinary length, similar to the body, and sparsely fringed with conical scales.

Habitat.—The plateaus of Mexico.

4. *Phrynosoma coronatum*.

Phrynosoma coronatum Blainville, Nouv. Ann. Hist. Nat., iv, 1835, p. 284, pl. xxv, fig. 1 *a* and 6 *e*; Dumeril & Bibron, Erpet. gener., iv, 1837, p. 318; Holbrook, N. A. Herp., ii, 1842, p. 97, pl. xiii; Dekay, Zool. New York, iii, 1842, p. 31; Aug. Dumeril, Cat. Meth. Coll. Rept. Mus. Paris, 1851, p. 78; Girard, Stans. Expl. Vall. Gt. Salt Lake, 1852, p. 360, pl. viii, figs. 7–12; Hallowell, Sitgreaves' Exped. Zuni and Colorado Riv., 1853, p. 122; Sanders, Proc. Zool. Soc. Lond., 1874, p. 71–78 (Myology); Cope, Check List of N. A. Batrach. and Rept., 1875, p. 50; Lockington, Am. Nat., xiv, 1880, p. 295.

Phrynosoma Blainvillei Gray, Beechey's Voy. Pacif. Zool., 1839, p. 96, pl. xxix, fig. 1; Gray, Cat. Liz. Brit. Mus., 1845, p. 228; Cope, Check List N. A. Batrach. and Rept., 1875, p. 49; Yarrow, U. S. Geol. Surv. west of 100 Meridian, v, 1875, p. 582.

Batrachosoma coronatum Fitzinger, Syst. Rept., i, 1843, p. 79; Girard, Herp. U. S. Expl. Exped., 1858, p. 400, pl. xx, figs. 10-13; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent., 1870, p. 239, pl. xii, fig. 10.

Head large; nostrils lateral; cephalic spines strongly developed; occipital spines separated from each other by a single plate or small spine, directed horizontally backward, beyond the longest temporals; sublabial plates small; a large flattened scale at the angle of the mouth; inframaxillary plates beneath it very small, the others large and sharp-edged; three or four rows of enlarged pointed gular scales upon each side of, and separated by, the median line; two rows of pyramidal scales at the periphery of the abdomen; abdominal scales smooth; back spinous; tail of ordinary length, similar to the body, fringed with conical spines.

Habitat.—Oregon and California.

In *coronatum* the plate or scale that separates the two occipital spines shows intermediate gradations between a nearly flattened and a tubercular and even spiny surface. Therefore, the possession of a flattened scale by a specimen, which was the leading character upon which *Blainvillei* was established, loses its importance and necessitates its incorporation with the species under consideration.

5. *Phrynosoma asio*.

Phrynosoma asio Cope, Proc. Acad. Nat. Sci. Phila., 1864, p. 178; Sumichrast, Bibl. Univers. et Rev. Suisse, 1873, p. 258; Sumichrast, Bull. Soc. Zool. Fr., 1880, p. 177.

Phrynosoma spinimentum Peters, Berlin Monatsb., 1873, p. 742.

Batrachosoma asio Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent., 1870, p. 241, pl. xvii, fig. 9.

Head large; nostrils lateral; cephalic spines well developed; occipital spines vertical, separated from each other by four or five small plates; temporal spines separated from the occipitals, and directed horizontally backward; sublabials small; inframaxillary plates increasing in size posteriorly; three or four rows of enlarged pointed subgular scales on each side of, and separated by, the median line; two rows of pyramidal scales at the periphery of the abdomen; abdominal scales carinated; back

spinous; tail of medium length, similar to the body, and margined with conical scales.

Habitat.—Tehuantepec, Mexico.

This large and beautiful species is most nearly allied to *coronatum*, from which it is separated by the character of the cephalic spines, and also that of the abdominal scales. It is also closely related to the succeeding species, differing, however, in the position of the nostrils, and in the number and position of the rows of enlarged gular scales.

6. *Phrynosoma cornutum*.

Agama cornuta Harlan, Journal Acad. Nat. Sci. Phila., iv, 1825, p. 299, pl. xx.

Lucerta cornuta Cuv., Regn. Anim., 2d edit., ii, 1819, p. 37.

Phrynosoma cornutum Gray, Griff. Anim. King., ix, 1831, p. 45; Holbrook, N. Am. Herp., ii, 1842, p. 87, pl. xi; DeKay, Zool. New York, iii, 1842, p. 31; Gray, Cat. Liz. Brit. Mus., 1845, p. 229; Girard, Stans. Expl. Vall. Gt. Salt Lake, 1852, p. 360, pl. viii, figs. 1-6; Blanchard, Organ. Regn. Anim., 1852, pt. v, pl. xii; Hallowell, Sitgreaves' Exped. Zuni and Col. Rivers, 1853, p. 119; Girard, Herp. U. S. Expl. Exped., 1858, p. 403, pl. xxi, figs. 6-9; Baird, U. S. and Mex. Bound. Surv., pt. ii, 1859, p. 9; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent., Rept., 1870, p. 236, pl. xii, fig. 9; Cope, Check List N. A. Batrach. and Rept., 1875, p. 49; Yarrow, U. S. Geol. Surv. west of 100th Meridian, v, 1875, p. 579; Müller, Verh. Nat. Gesell., Basel, 1878, p. 634; Cope, Proc. Am. Phil. Soc., 1879, p. 261; Cope, Bull. U. S. Nat. Mus., No. 17, 1880, p. 17.

Phrynosoma Harlani Wiegmann, Herp. Mex., i, 1834, p. 54; Dumeril & Bibron, Erpet. gener., iv, 1837, p. 314; Spring & Lacordaire, Bull. Acad. Roy. Brussels, 1842, pt. ii, p. 192, fig. 2; Aug. Dumeril, Cat. Meth. Coll. Rept. Mus. Paris, 1851, p. 28.

Tropidogaster cornutus Fitzinger, Sys. Rept., i, 1843, p. 79.

Phrynosoma planiceps Hallowell, Proc. Acad. Nat. Sci. Phila., 1852, p. 178; Hallowell, Sitgreaves' Exped. Zuni and Col. Rivers, 1853, p. 124, pl. vii; Dumeril, Arch. Mus. Hist. Nat., viii, 1853, p. 552; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent., 1870, p. 238, pl. xii, fig. 11; Cope, Check List N. A. Batrach. and Rept., 1875, p. 49; Yarrow, U. S. Geol. Surv. west of 100th Meridian, v, 1875, p. 579, pl. xxiv, fig. 1; Coues, in the above, p. 593.

Head broad; nostrils anterior, placed within the superciliary ridges; cephalic spines strongly developed; occipital spines long, directed obliquely upward, a smaller spine between the two; posterior inframaxillary plates largest; one row of enlarged pointed gular scales on each side, distant from the median line; two rows

of pyramidal scales at the periphery of the abdomen; abdominal scales carinated, occasionally smooth or nearly so; back with several rows of spiny scales; tail of ordinary length, similar to the body, and fringed with conical scales.

Habitat.—Kansas, Indian Territory, Texas, and New Mexico. Possibly from Arkansas and Louisiana.

The only difference between *cornutum* and the supposed species *planiceps*, was in the character of the abdominal scales, the former being carinated, and the latter smooth. Prof. Cope, however, after examining numbers of specimens, finds that the above forms grade into each other, and, consequently, considers them but one species.

7. *Phrynosoma regale*.

Phrynosoma regale Girard, Herp. U. S. Expl. Exped., 1858, p. 406; Baird, U. S. and Mex. Bound. Surv., 1859, pt. ii, p. 9, pl. xxviii, fig. 1-3; Cope, Proc. Acad. Nat. Sci. Phila., 1866, p. 310; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 235, pl. xii, fig. 12; Cope, Check List N. A. Batrach. and Rept., 1875, p. 49; Yarrow, U. S. Geol. Surv. west of the 100th Meridian, v, 1875, p. 578; Cones, in the above work, p. 593; Müller, Verh. Nat. Gesell., Basel, 1878, p. 634; Lockington, Am. Nat., 1880, p. 295.

“*Phrynosoma solaris* Gray, Cat. Liz. Brit. Mus., 1845, p. 229?”

Head large; nostrils anterior; cephalic spines strongly developed, directed backwards; the longest two of the temporals being in the same plane as, and touching, the occipitals, all four being subequal; no plate or scale separating the occipital spines; two rows of enlarged pointed gular scales, one on each side of, and distant from, the median line; last inframaxillary plate smaller than the preceding; two rows of pyramidal scales at the periphery of the abdomen, lower one very small; abdominal scales carinated; back spinous; tail of medium length, similar to the body, and fringed with conical scales.

Habitat.—Valleys of the Gila and Colorado Rivers.

8. *Phrynosoma taurus*.

Phrynosoma taurus Dugès MSS., 1868; Dugès, Cat. Vert. Mex., 1869; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 234, pl. xii, fig. 8; Dugès, La Natureza, ii, 1871-73, p. 302, fig.

Head broad; nostrils anterior; occipital spines small and conical; temporals strongly developed, conical, projecting very much

farther posteriorly than the occipitals; inframaxillary plates nearly equal; one row of enlarged pointed gular scales upon each side of, and distant from, the median line; a single row of pyramidal scales at the periphery of the abdomen; abdominal scales carinated; back spinous; tail very short, about as long as the femur, and with very few conical scales along the margins.

Habitat.—Puebla, Southern Mexico.

9. *Phrynosoma Braconnieri*.

Phrynosoma Braconnieri Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 233, pl. xii, fig. 7.

Head as broad as long; nostrils anterior; cephalic spines of medium size; occipital spines somewhat less prolonged posteriorly than the longest of the temporals; four or five temporal spines upon each side; one row of enlarged pointed gular scales upon each side of, and distant from, the median line; inframaxillary plates nearly equal; a single row of pyramidal scales at the periphery of the abdomen; abdominal scales carinated; tail very short, little more than half as long as the femur.

Habitat.—Oaxaca, Southern Mexico.

10. *Phrynosoma platyrhinos*.

Phrynosoma platyrhinos Girard, Stans. Expl. Vall. Gt. Salt Lake, 1852, p. 361, pl. vii, fig. 1-5; Cope, Proc. Acad. Nat. Sci. Phila., 1866, p. 302; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 232; Cope, Check List N. A. Batrach. and Rept., 1875, p. 49; Yarrow, U. S. Geol. Surv. west of the 100th Meridian, v, 1875, p. 577; Cones, in the above work, p. 594.

Doliosaurus platyrhinos Girard, Herp. U. S. Expl. Exped., 1858, p. 409; Baird, P. R. R. Rept., Gunnison & Beckwith's Route, Rept., 1859, p. 18.

Head small; nostrils anterior; cephalic spines of medium size; occipital spines produced further than the longest of the temporals, posteriorly; sublabial plates nearly equal; inframaxillary plates becoming larger posteriorly; one row of enlarged gular scales on each side of, and distant from, the median line; one row of pyramidal scales at the periphery of the abdomen; abdominal scales smooth; back with several rows of spinous scales; tail of medium length, fringed with conical scales.

Habitat.—Utah, Nevada, New Mexico, Arizona and California.

11. *Phrynosoma modestum*.

Phrynosoma modestum Girard, Stans. Expl. Vall. Gt. Salt Lake, 1852, p. 361, pl. vi, fig. 4-8; Cope, Proc. Acad. Nat. Sci. Phila., 1866, p. 302; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent., Rept., 1870, p. 232; Cope, Check List N. A. Batrach. and Rept., 1875, p. 49; Yarrow, U. S. Geol. Surv. west of 100th Meridian, v, 1875, p. 577; Coues, in the above work, p. 594.

Doliosaurus modestus Girard, Herp. U. S. Expl. Exped., 1858, p. 409; Baird, U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, p. 10; Baird, P. R. R. Rept., x, 1859, Whipple's Route, Rept., p. 38.

Head broader than long; nostrils anterior; cephalic spines small; occipital spines extending as far as the longest of the temporals, posteriorly; auricular aperture sometimes wanting on one or both sides, but when present, small and granular; sublabial plates small and nearly equal; inframaxillary plates broad and pointed; gular scales next to the inframaxillary plates slightly larger than the others; no pyramidal scales at the periphery of the abdomen; abdominal scales smooth; back nearly smooth, devoid of conical scales; tail nearly equal in length to the body, a few conical scales along the basal margin.

Habitat.—Western Texas, Utah, New Mexico and Arizona.

12. *Phrynosoma Maccalli*.

Anota Maccalli Hallowell, Proc. Acad. Nat. Sci. Phila., 1852, p. 122; Hallowell, Sitgreaves' Exped. Zuni and Col. Rivers, 1853, p. 127, pl. x, figs. 1, 2; Dumeril & Bocourt, Miss. Sci. au Mex. et Am. Cent. Rept., 1870, p. 230.

Doliosaurus Maccalli Girard, Herp. U. S. Expl. Exped., 1858, p. 408; Baird, U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, p. 9, pl. xxviii, figs. 4-6.

Phrynosoma Maccalli Cope, Proc. Acad. Nat. Sci. Phila., 1866, p. 310; Cope, Check List N. A. Batrach. & Rept., 1875, p. 49; Coues, U. S. Geol. Surv. west of 100th Meridian, v, 1875, p. 593.

Head small; snout truncate; nostrils anterior; cephalic spines long, strongly developed; occipital spines slightly recurved; middle inframaxillary spines broadest and longest; one row of enlarged gular scales upon each side of, and distant from, the median line; auricular apertures always wanting; no pyramidal scales at the periphery of the abdomen; abdominal scales smooth; back smooth as in *modestum*; tail as long as the body, margined with conical scales.

Habitat.—Deserts of the Gila and Colorado Rivers.